BY ORDER OF THE COMMANDER

50TH SPACE WING INSTRUCTION 33-101

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Communications and Information

AFSCN COMMUNICATIONS OUTAGE RESOLUTION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This document provides guidance for the Air Force Satellite Control Network (AFSCN) on resolving outage conditions. It addresses specific resolution procedures required to troubleshoot, restore, and properly manage the Operational Switch Replacement (OSR) that encompasses all AFSCN communications. It applies to all AFSCN tenant organizations, Onizuka Air Force Station (OAFS), Schriever AFB (SAFB), Remote Tracking Stations (RTS) and other Remote Ground Facilities (RGF), AFSCN External Users (EXU), and all contractors tasked by this instruction, as stipulated by contract.

The 50th Space Wing (50 SW) Network Control Center (NCC) is responsible for the overall operations and maintenance of the AFSCN communication segment. The 50 SW NCC will be responsible for the day-to-day operations and maintenance of the SAFB Operational Control Node (OCN) as well as fault detection/fault isolation (FD/FI) of those resources. The OAFS NCC (21 SOPS/DON), as delegated by the 50 SW NCC, is responsible for operations and maintenance of OAFS OCN and FD/FI of all AFSCN communication outages that affects both OCNs. The NCCs will control and monitor the health and status of all AFSCN communication assets. NCC personnel will provide guidance and direction to the RGF personnel during FD/FI efforts.

1. Overview.

1.1. OSR is a dynamic communication environment that uses network communications such as Internet protocol (IP) routing and asynchronous transfer mode (ATM) call-setup. Due to this network implementation, user coordination for FD/FI and fault recovery activities between the OCNs and Remote Ground Facilities (RGF) is of paramount importance. As with previous AFSCN communications systems, the primary source for identifying anomalies is the user. The OSR Distributed Communications Controller (DCC) will identify problems and indicate communication system problems, notably failure to establish connections.

1.2. What may have been an appropriate action in the past can be problematic in OSR. OSR network implementation has built-in redundancy and depending on the problem detected, it may still be pro-

viding full operational capabilities, despite fault indications. Immediate action may not always be warranted.

2. Organizations.

2.1. The various agencies, facilities and work centers involved in outage resolution are described in **Attachment 1**.

2.2. Many agencies and work centers coordinate efforts on shared voice nets or voice conferences. Call signs are used to help distinguish between organizations on a net. The organizational descriptions in **Attachment 1** include call signs used by those agencies.

3. Coordination Procedures.

3.1. To ensure all actions that could affect AFSCN communications are properly coordinated, there are specific coordination procedures that must be followed. These coordination procedures are included in **Attachment 2**.

NOTE: Many coordination procedures are used during the resolution of communication outages, but some coordination procedures will occur on a regular basis as a part of preventative maintenance, scheduled downtimes and crypto operations. These coordination procedures must be followed to prevent any communication outages.

3.2. All coordination procedures follow these basic precepts:

3.2.1. Any action that will affect the normal operation of OSR communication equipment, which includes Wide Area Network Interface Units (WANIU), Distributed Communication Controller (DCC), encryption devices, CISCO Catalyst 5500 modules, and Timeplex CX-1500 Cell Exchangers, requires prior coordination with SAFB Distributed Tech Control (DTC) and OAFS Comm Control.

3.2.2. All those involved in an OSR communication effort will meet on the OSR Tech Net before taking any action.

3.2.3. Should any anomaly or outage condition occur during a routine crypto operation, administrative change, or maintenance effort, all further actions will be suspended while DTC and Comm Control investigate.

4. OSR Tech Net.

4.1. The OSR Tech Net is an established conference on the OAFS TCSS (Traffic Control Switching Set) that facilitates coordination between agencies while troubleshooting is in progress.

4.2. 50th Space Communications Squadron DTC and 21st Space Operations Squadron Network Directors (Comm Control) will request AFSCN users and communication work centers to join the OSR Tech Net as needed to aid troubleshooting efforts.

4.3. Comm Control continuously monitors the OSR Tech Net and will oversee and assist any coordination efforts.

4.4. OAFS communication work centers have direct access to the OSR Tech Net via TCSS phones. When needed, Comm Control will contact the work center to have the area access the OSR Tech Net.

4.5. The RTS communication areas have access to the OSR Tech Net via any of the dedicated voice drops connected to TCSS. An RTS contacts the TCSS operator and asks to be added to the OSR Tech Net.

4.6. All others agencies and work centers can access the OSR Tech Net by calling the TCSS Operator at CMCL (408) 752-3661 or DSN 561-3661 and providing a call back number to be added to the net.

NOTE: Call signs are used on the OSR Tech Net to distinguish between agencies and work centers communicating on the net.

5. Responsibilities.

5.1. **50th Space Wing Network Control Center (50 SW NCC):**

5.1.1. Is the focal point for all incoming troubles and outages for AFSCN communications. All calls will be directed to CMCL (719) 567-2666 or DSN 560-2666, also known as 7-COMM

5.1.2. Gathers and tracks anomalous sortie information, outage information, and 50 SW maintenance activities.

5.1.3. Notifies DTC of all OSR communication related problems, outages, and trends.

5.2. **AFSCN Users:**

5.2.1. Contact 50 SW NCC immediately upon identification of an outage condition. Failures are to be reported as soon as possible, but no later than 15 minutes after occurrence or outage declaration.

5.2.2. Note anomalies during sorties and report them to 50 SW NCC within 15 minutes for tracking and analysis.

5.3. **50th Space Communication Squadron DTC:**

5.3.1. Monitors AFSCN communications from SAFB.

5.3.2. Reports outage conditions to the 50 SW NCC.

5.3.3. Coordinates with Comm Control on the OSR Tech Net for any OSR troubleshooting efforts.

5.3.4. Enters into Electronic Scheduling-Status Distribution (ESD) AFSCN communication outage information for distribution by 22nd Space Operation Squadron Network Status.

5.3.5. Coordinates with 22nd Space Operations Scheduling to obtain any needed windows or downtime required to perform restoration actions.

5.4. **21st Space Operations Squadron Network Directors (Comm Control):**

5.4.1. Monitors AFSCN communications from OAFS.

5.4.2. Reports outage conditions to the 50SW NCC.

5.4.3. Coordinates with DTC on the OSR Tech Net for any OSR troubleshooting efforts.

5.4.4. Enters into Electronic Scheduling-Status Distribution (ESD) AFSCN communication outage information for distribution by 22nd Space Operation Squadron Network Status.

5.4.5. Coordinates with 22nd Space Operations Scheduling to obtain any needed windows or downtimes required to perform restoration actions.

5.5. **22nd Space Operations Squadron Network Status (Network Status):**

5.5.1. Tracks AFSCN resource status for real-time scheduling.

5.5.2. Ensures up-to-date AFSCN resource status is available to all AFSCN elements.

5.6. **Remote Tracking Station Communication Areas:**

5.6.1. Contact 50 SW NCC immediately upon identification of an outage condition. Failures are reported as soon as possible, but no later than 15 minutes after occurrence or outage declaration

5.6.2. Note anomalies during sorties and report them within 15 minutes to 50 SW NCC for tracking and analysis.

5.6.3. Join DTC and Comm Control on the OSR Tech Net for any OSR troubleshooting efforts involving that site.

5.6.4. Contact DTC and Comm Control prior to performing any maintenance on OSR equipment or crypto updates.

6. Restoration Checkouts.

6.1. After restoration of any AFSCN communications, DTC and Comm Control will ensure that all services have been restored to nominal levels prior to closing network outages.

6.2. Prior to an outage being closed any service affected or potentially affected by a communication outage should be tested to ensure nominal capability is restored.

MICHAEL D. SELVA, Colonel, USAF
Commander

Attachment 1

ORGANIZATIONS AND CALL SIGNS

Organization	Work Center	Call-sign
50 SCS/SCB	50SW NCC	7-Comm
	Distributed Tech Control	D.T.C.
	Network Support Center	N.S.C.
	AFSCN Site Administrator	S.A.
50 SCS/SCM	Maintenance	Schriever Maintenance
21 SOPS/DON	Network Directors	Comm Control
	Consolidated Communication Center	Dice Tech
	Crypto Operations	Dice Comm
	NCC Maintenance	Dice Maintenance
	AFSCN Site Administrator	Dice Admin
	TCSS Operations	Voice
21 SOPS/MAO	Camp Parks Communications Annex	Park
22 SOPS	AFSCN Network Crew Commander	Crew Commander
22 SOPS/CTS	Colorado Tracking Station	Pike
22 SOPS, Det 1	Vandenberg Tracking Station	Cook
	Eastern Vehicle Checkout Facility	Beach
22 SOPS, Det 2	Diego Garcia Tracking Station	Reef
22 SOPS, Det 3	Thule Tracking Station	Pogo
22 SOPS, Det 4	Hawaii Tracking Station	Hula
22 SOPS, Det 5	Guam Tracking Station	Guam
OL-AE 22 SOPS	Oakhanger Telemetry and Command Station	Lion
23 SOPS	New Hampshire Tracking Station	Boss
50 SCS	OSMC	Hawk
SWC/XRM	Aerospace Fusion Center (AFC) & ALERT	2121
Navsoc Det D	SOC 77	Ankr
6 SOPS	SOC 61 (Esoc)	Peak
SMC/TEO (Ceres)	SOC 97	King
SMC/TEOE	RSC	Mesa
NOPS	NOPS	Rock

Attachment 2

COORDINATION PROCEDURES

A2.1. Crypto Operations. All crypto operations coordination procedures involve the following four agencies: 21 SOPS Network Director (Comm Control), 50 SCS Distributed Tech Control (DTC), 21 SOPS Crypto Operations (Dice Comm), and a Remote Ground Facility communications area (RGF Comm).

A2.1.1. **Additional Path Aggregate Crypto Material Changes.** RGF Comm will initiate this coordination procedure based on the given schedule for crypto material changes.

A2.1.1.1. Comm Control, DTC, RGF Comm, and Dice Comm will meet on the OSR Tech Net.

NOTE: Should any anomalies or outage conditions occur during the crypto material change, RGF Comm will inform DTC and Comm Control. Crypto material changes will be suspended while DTC and Comm Control investigate.

A2.1.1.2. RGF Comm will request DTC and/or Comm Control coordinate the release of any connections mapped over the additional path aggregate. Once connections have been released, DTC and/or Comm Control will inform RGF Comm that they may proceed.

A2.1.1.3. RGF Comm will coordinate with DTC and Dice Comm the required crypto material change as per local procedures.

A2.1.1.4. RGF Comm will notify DTC and/or Comm Control when the crypto material change has been accomplished successfully.

A2.1.1.5. DTC and/or Comm Control will coordinate the restoration of any required connections that were dropped earlier.

A2.1.2. **Secure Voice Crypto Material Changes.** A RGF will initiate this coordination procedure based on the given schedule for crypto material changes.

A2.1.2.1. Comm Control, DTC, RGF Comm, and Dice Comm will meet on the OSR Tech Net.

NOTE: Should any anomalies or outage conditions occur during the crypto material change, RGF Comm will inform DTC and Comm Control. Crypto material changes will be suspended while DTC and Comm Control investigate.

A2.1.2.2. RGF Comm will request DTC and/or Comm Control coordinate the restoration of the DRSN connections should they be down. Once connections have been restored, DTC and/or Comm Control will inform RGF Comm that they may proceed.

A2.1.2.3. RGF Comm will coordinate with DTC and Dice Comm the required crypto material change as per local procedures.

A2.1.2.4. RGF Comm will notify DTC and/or Comm Control when the crypto material change has been accomplished successfully.

A2.1.2.5. DTC and/or Comm Control will coordinate restoral of secure voice connections that were dropped for the crypto material change, if required.

A2.1.3. **Secure Voice Crypto Variable Changes.** RGF Comm will initiate this coordination procedures based on the given schedule for crypto variable changes.

NOTE: Should any anomalies or outage conditions occur during the crypto variable changes, Comm Control, DTC, RGF Comm, and Dice Comm will meet on the OSR Tech Net. Crypto variable changes will be suspended while DTC and Comm Control investigate.

A2.1.3.1. RGF Comm will contact DTC and/or Dice Comm direct to coordinate crypto variable changes.

A2.1.4. **Primary Path Fastlane Virtual Path Re-initialization** . DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a virtual path re-initialization to take place, DTC and Comm Control will be contacted to coordinate.

NOTE: Any work center discovering a virtual path outage will immediately notify DTC and Comm Control. DTC and Comm Control will investigate and direct further action.

A2.1.4.1. Comm Control, DTC, RGF Comm and Dice Comm will meet on the OSR Tech Net.

A2.1.4.2. DTC and Comm Control will ensure the virtual path is free of any traffic.

A2.1.4.3. DTC and Comm Control will direct re-initialization of the virtual connection.

A2.1.4.4. DTC and Comm Control will ensure full capability is restored.

A2.1.5. **Crypto Restarts.** DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a crypto restart to take place, DTC and Comm Control will be contacted to coordinate.

NOTE: Any work center discovering a crypto down will immediately notify DTC and Comm TE Control. DTC and Comm Control will investigate and direct further action.

A2.1.5.1. Comm Control, DTC, RGF Comm and Dice Comm will meet on the OSR Tech Net.

A2.1.5.2. DTC and Comm Control will ensure the crypto is free of any traffic.

A2.1.5.3. DTC and Comm Control will direct the restart of the crypto.

A2.1.5.4. DTC and Comm Control will ensure full capability is restored.

A2.1.6. **Crypto Material Reload.** DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a crypto material reload to take place, DTC and Comm Control will be contacted to coordinate.

A2.1.6.1. Comm Control, DTC, RGF Comm and Dice Comm will meet on the OSR Tech Net.

A2.1.6.2. DTC and Comm Control will ensure the crypto is free of any traffic.

A2.1.6.3. DTC and Comm Control will direct the reload and restart of the crypto.

A2.1.6.4. DTC and Comm Control will ensure full capability is restored.

A2.1.7. **Crypto Replacement.** DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a crypto replacement to take place, DTC and Comm Control will be contacted to coordinate.

A2.1.7.1. Comm Control, DTC, RGF Comm and Dice Comm will meet on the OSR Tech Net.

A2.1.7.2. DTC and Comm Control will ensure the crypto is free of any traffic.

A2.1.7.3. DTC and Comm Control will direct the replacement, reload and restart of the crypto.

A2.1.7.4. DTC and Comm Control will ensure full capability is restored.

A2.2. Communication Equipment. All communication equipment coordination procedures involve the following agencies: 21 SOPS Network Director (Comm Control), 21 SOPS Network Communication Center Maintenance (Dice Maintenance), 50 SCS Distributed Tech Control (DTC), 50 SCS Network Support Center (NSC), 50 SCS Maintenance (Schriever Maintenance) and a Remote Ground Facility communications area (RGF Comm).

A2.3. WANIU Reboot, Power Down and Power Up, or Configuration Reload/Restoration. DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a WANIU power down or configuration change, DTC and Comm Control will be contacted to coordinate.

A2.3.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS WANIU is affected, Dice Maintenance will join the OSR Tech Net. If a SAFB WANIU is affected, Schriever Maintenance will join the OSR Tech Net.

A2.3.2. DTC and Comm Control will ensure the WANIU is free of any traffic.

A2.3.3. DTC and Comm Control will direct the reboot, power down, any appropriate maintenance, and/or power up of designated WANIU equipment.

A2.3.4. DTC and Comm Control will ensure full capability is restored.

A2.4. CISCO Catalyst 5500 Power Down and Power Up or Configuration Reload/ Restoration. DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a CISCO 5500 power down or configuration change, DTC and Comm Control will be contacted to coordinate.

A2.4.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS CISCO 5500 is affected, Dice Maintenance will join the OSR Tech Net. If a SAFB CISCO 5500 is affected, Network Support Center (NSC) will join the OSR Tech Net.

A2.4.2. DTC and Comm Control will ensure the CISCO 5500 is free of any traffic.

A2.4.3. DTC and Comm Control will direct the power down, appropriate maintenance actions, and/or power up of effected equipment.

A2.4.4. DTC and Comm Control will ensure full capability is restored.

A2.5. CISCO Catalyst 5500 Module Hot Swap. DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a CISCO 5500 module swap, DTC and Comm Control will be contacted to coordinate.

A2.5.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS module is being swapped, Dice Maintenance will join the OSR Tech Net. If a SAFB module is being swapped, NSC will join the OSR Tech Net.

A2.5.2. DTC and Comm Control will ensure the module is free of any traffic.

A2.5.3. DTC and Comm Control will direct the module swap.

A2.5.4. DTC and Comm Control will ensure full capability is restored.

A2.6. Timeplex CX-1500 Power Down and Power Up or Configuration Reload/ Restoration. DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a CX-1500 power down or configuration change, DTC and Comm Control will be contacted to coordinate.

A2.6.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS Timplex CX-1500 is affected, Dice Maintenance will join the OSR Tech Net.

A2.6.2. DTC and Comm Control will ensure the Timplex CX-1500 is free of any traffic.

A2.6.3. DTC and Comm Control will direct the power down, appropriate maintenance actions, and/ or power up of effected equipment.

A2.6.4. DTC and Comm Control will ensure full capability is restored.

A2.7. Timeplex CX-1500 Card Reset. DTC and Comm Control will initiate this coordination procedure based on a given outage condition. Should a routine maintenance action require a CX-1500 card reset, DTC and Comm Control will be contacted to coordinate.

A2.7.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS card is affected, Dice Maintenance will join the OSR Tech Net.

A2.7.2. DTC and Comm Control will ensure the card is free of any traffic.

A2.7.3. DTC and Comm Control will direct the card reset.

A2.7.4. DTC and Comm Control will ensure full capability is restored.

A2.8. Path Procedures. All path procedures involve the following AFSCN agencies: 21 SOPS Network Director (Comm Control), 21 SOPS Consolidated Communications Center (Dice Tech) and 50 SCS Distributed Tech Control (DTC) and Defense Information Systems Agency (DISA). Both primary and alternate PVPs outages must be reported to DISA in accordance with DISA Circular 310-55-1 and Western Hemisphere Reporting Station Guide.

A2.9. ATM Permanent Virtual Path (PVP) Testing or Downtime. DTC and Comm Control will initiate this coordination procedure based on a given outage condition or scheduled Defense Information Systems Agency (DISA) downtime. DTC and Comm Control do this to prevent AFSCN traffic from routing over the PVP given over to DISA for testing during an outage or for scheduled maintenance.

A2.9.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net. If an OAFS PVP is affected, Dice Tech will join the OSR Tech Net.

A2.9.2. DTC and Comm Control will ensure the PVP is free of traffic.

A2.9.3. DTC and Comm Control will direct the shut down of the PVP interface to prevent any new traffic.

A2.9.4. DTC and Comm Control will contact DISA to proceed with testing or downtime.

A2.9.5. DTC and Comm Control will direct the restoration of the PVP interface upon return of service from DISA.

A2.9.6. DTC and Comm Control will ensure full capability is restored.

A2.10. Additional Path Testing or Downtime. DTC and Comm Control will initiate this coordination procedure based on a given outage condition or scheduled downtime. DTC and Comm Control do this to prevent AFSCN traffic from routing over the additional path given over to the carrier for testing during an outage or for scheduled maintenance.

A2.10.1. Comm Control, affected RGF Comm(s), and DTC will meet on the OSR Tech Net.

A2.10.2. DTC and Comm Control will ensure the additional path is free of traffic.

A2.10.3. DTC and Comm Control will contact the appropriate DISA or commercial agency to proceed with testing or downtime.

A2.10.4. DTC and Comm Control will ensure full capability is restored upon return of service from the DISA or commercial agency.

A2.11. Inter-nodal Communication Path Testing or Downtime. DTC and Comm Control will initiate this coordination procedure based on a given outage condition or scheduled DISA downtime. DTC and Comm Control do this to prevent AFSCN traffic from routing over inter-nodal communication given over to DISA for testing during an outage or for scheduled maintenance.

A2.11.1. Comm Control, Dice Tech and DTC will meet on the OSR Tech Net.

A2.11.2. DTC and Comm Control will ensure inter-nodal communication is free of traffic.

A2.11.3. DTC and Comm Control will direct the shut down of both inter-nodal communication PVPs to prevent any new traffic.

A2.11.4. DTC and Comm Control will contact DISA to proceed with testing or their downtime.

A2.11.5. DTC and Comm Control will direct the restoration of the PVPs upon return of service from DISA.

A2.11.6. DTC and Comm Control will ensure full capability is restored.